

What is claimed is:

1. A method of identifying an ADP-glucose receptor agonist or antagonist, comprising:
  - (a) contacting an ADP-glucose receptor polypeptide with one or more candidate compounds under conditions wherein said receptor produces a G-protein coupled signal in response to ADP-glucose; and
  - (b) identifying a candidate compound that alters production of said signal, said compound being characterized as a ADP-receptor agonist or antagonist.
2. The method of claim 1, wherein said ADP-glucose receptor polypeptide has at least 70% identity to the amino acid sequence designated SEQ ID NO:2.
3. The method of claim 1, wherein said ADP-glucose receptor polypeptide has the amino acid sequence designated SEQ ID NO:2.
4. The method of claim 1, wherein said G-protein coupled signal is increased intracellular calcium ion concentration.
5. The method of claim 1, wherein said one or more candidate compounds comprises 100 or more different candidate compounds.
6. The method of claim 1, wherein said candidate compound contacts said ADP-glucose receptor polypeptide in the presence of ADP-glucose.

7. A method of identifying an ADP-glucose receptor ligand, comprising:

- (a) contacting an ADP-glucose receptor polypeptide with one or more candidate compounds under  
5 conditions wherein said receptor selectively binds ADP-glucose; and  
(b) identifying a candidate compound that selectively binds said ADP-glucose receptor polypeptide, said compound being characterized as an ADP-receptor  
10 ligand.

8. The method of claim 7, wherein said ADP-glucose receptor polypeptide has at least 70% identity to the amino acid sequence designated SEQ ID NO:2.

9. The method of claim 7, wherein said ADP-glucose receptor polypeptide has the amino acid sequence designated SEQ ID NO:2.  
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10. The method of claim 7, wherein said one or more candidate compounds comprises 100 or more different candidate compounds.

20 11. The method of claim 7, wherein said candidate compound contacts said ADP-glucose receptor polypeptide in the presence of ADP-glucose.

12. A method of identifying an ADP-glucose receptor agonist or antagonist, comprising:

- (a) contacting an ADP-glucose receptor polypeptide with one or more candidate compounds in the presence of ADP-glucose under conditions wherein said receptor produces a G-protein coupled signal in response to ADP-glucose; and
- (b) identifying a candidate compound that alters production of said signal, said compound being characterized as a ADP-receptor agonist or antagonist.

13. The method of claim 12, wherein said ADP-glucose receptor polypeptide has at least 70% identity to the amino acid sequence designated SEQ ID NO:2.

14. The method of claim 12, wherein said ADP-glucose receptor polypeptide has the amino acid sequence designated SEQ ID NO:2.

15. The method of claim 12, wherein said G-protein coupled signal is increased intracellular calcium ion concentration.

16. The method of claim 12, wherein said one or more candidate compounds comprises 100 or more different candidate compounds.

17. A method of identifying an ADP-glucose receptor ligand, comprising:

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- (a) contacting an ADP-glucose receptor polypeptide with one or more candidate compounds in the presence of ADP glucose under conditions wherein said receptor selectively binds ADP-glucose; and
- (b) identifying a candidate compound that selectively binds said ADP-glucose receptor polypeptide, said compound being characterized as an ADP-receptor ligand.

18. The method of claim 17, wherein said ADP-glucose receptor polypeptide has at least 70% identity to the amino acid sequence designated SEQ ID NO:2.

19. The method of claim 17, wherein said ADP-glucose receptor polypeptide has the amino acid sequence designated SEQ ID NO:2.

20. The method of claim 17, wherein said one or more candidate compounds comprises 100 or more different candidate compounds.

21. A method of altering signaling through ADP-glucose receptor, comprising contacting a cell expressing said receptor with ADP-glucose, or an ADP-glucose receptor agonist or antagonist.

22. A method of ameliorating an ADP-glucose receptor associated condition, comprising administering to an individual an effective amount of a therapeutic composition comprising ADP-glucose, or an ADP-glucose receptor agonist or antagonist.

23. The method of claim 22, wherein said ADP-glucose receptor associated condition is a disorder of cardiovascular function.

24. The method of claim 22, wherein said  
5 therapeutic composition induces vasorelaxation.

25. A composition, comprising an isolated ADP-glucose receptor polypeptide and ADP-glucose.

26. The composition of claim 25, wherein said  
10 ADP-glucose receptor polypeptide has at least 70% identity to the amino acid sequence designated SEQ ID NO:2.

27. The composition of claim 25, wherein said ADP-glucose receptor comprises the amino acid sequence  
15 designated SEQ ID NO:2.

28. The composition of claim 25, wherein said ADP-glucose is a detectably labeled ADP-glucose.

29. The composition of claim 28, wherein said detectably labeled ADP-glucose is radiolabeled  
20 ADP-glucose.

30. The composition of claim 25, wherein said polypeptide is contained in a lipid bilayer.

31. The composition of claim 30, further comprising a G-protein.

32. The composition of claim 31, wherein said G-protein comprises a  $G\alpha$  subunit selected from the group consisting of  $G\alpha_q$ ,  $G\alpha_{16}$  and a chimeric  $G\alpha$ .

33. The composition of claim 30, wherein said  
5 lipid bilayer is a cell membrane.